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10/780,803	02/17/2004	Saul Lewites	42P18132	1520
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INTEL CORPORATION c/o INTELLEVATE, LLC P.O. BOX 52050 MINNEAPOLIS, MN 55402			EXAMINER ARCOS, CAROLINE H	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/780,803

Applicant(s)

LEWITES ET AL.

Examiner

Caroline Arcos

Art Unit

2195

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-21 are pending for examination.

Specification

2. The disclosure is objected to because of the following informalities:

The specification is missing the field of invention and the brief summary of invention.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-21 are rejected under 35 U.S.C 101 because the claimed invention is directed to non-statutory subject matter.
5. Claims 1-21 are non- statutory as they fail to produce a “useful, concrete, and tangible result.” *State Street Bank & Trust Co. V. Signature Financial Group Inc.* 149 F. 3d 1368, 1373-74 (Fed. Cir. 1998). The claims are directed to nothing more than an algorithm of a data structure maintaining information, thereby failing to indicate how the invention accomplishes a practical application of this algorithm. That is, the claims fall under the judicial exception of an “abstract

idea” i.e. an algorithm, which is ineligible for patent protection, since it is not a practical application of this maintaining idea. *Diamond v. Diehr*, 450 U.S. 175, 185 (1981).

6. Claims 1 -7 and 15-21 are rejected under 35 U.S.C 101 because the claimed invention is directed toward to apparatus and medium, but appearing to be comprised of software alone without claiming associated computer hardware required for maintaining the information of VPCID, thus the invention is software per se, and does not fit the statutory category or inventions. The following link on the world wide web is for the United States Patent and Trademark office (USPTO) policy on 35 USC 101.

http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101_20051026.pdf

7. Claims 15-21 are not limited to statutory embodiments. In view of applicant's disclosure, specification par. [0015], lines 1-2 and par. [0026], lines 4-6. the medium is not limited to statutory embodiments, instead being defined as including both statutory embodiments (e.g., RAM, ROM, magnetic disk, optical storage medium and flash memory devices) and unstatutory embodiments (e.g., propagated signals, carrier waves, infrared signals, digital signals, or any type of machine medium readable by the processors) that do not fit the statutory category of inventions.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
9. Claims 1-5, 8-12 and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Langendorf et al. (Langendorf) (US 2003/0005207 A1).
10. As per claim 1, Langendorf teaches the invention substantially as claimed including an apparatus, comprising:

a data manager (Par. [0005], lines 1-2; Par. [0022], lines 9-10);

the data manager utilizes the data structure to maintain information for at least one virtual peripheral component interconnect device (VPCID) (Abs, lines 3-8; Par. [0005], lines 1-11; Par. [0022], lines 9-23).
11. Langendorf did not teach specifically a data structure. However, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have a data structure to save the maintained data of VPCID. Therefore, one would be motivated to utilize this concept to improve the overall system maintenance.

12. As per claim 2, Langendorf teaches that the information includes both data and state information (Par. [0032], lines 7-14).
13. As per claim 3, Langendorf teaches that the data manager utilizes the data structure to maintain information for at least one instance of the at least one VPCID (Par. [0022], lines 9-23; Par. [0032], lines 11-14).
14. As per claim 4, Langendorf teaches that the data structure is comprised of a virtual machine (VM) data structure, wherein the VM data structure is comprised of elements representing a unique VM, wherein each VM data structure element is associated with the at least one VPCID instance.
15. As per claim 5, Langendorf teaches that each VM data structure element is associated with a configuration hash table, an Input/Output (I/O) hash table and a memory hash table, wherein entries in at least one of the configuration hash table, the I/O hash table and the memory hash table are associated with the at least one VPCID instance (Par. [0022], lines 9-19; Par. [0032], lines 7-14).
16. As per claim 8, Langendorf teaches maintaining information for at least one virtual peripheral component interconnect device (VPCID) via a data manager and a data structure (Abs, lines 3-8; Par. [0005], lines 1-11; Par. [0022], lines 9-23).

17. As per claim 9, it is the method claim of the apparatus claim 2. Therefore, it is rejected under the same rational as claim 2.
18. As per claim 10, it is the method claim of the apparatus claim 3. Therefore, it is rejected under the same rational as claim 3.
19. As per claim 11, it is the method claim of the apparatus claim 4. Therefore, it is rejected under the same rational as claim 4.
20. As per claim 12, it is the method claim of the apparatus claim 5. Therefore, it is rejected under the same rational as claim 5.
21. As per claim 15, Langendorf teaches a machine-readable medium containing instructions which, when executed by a processing system, cause the processing system to perform a method, the method comprising: maintaining information for at least one virtual peripheral component interconnect device (VPCID) via a data manager and a data structure (Abs, lines 3-8; Par. [0005], lines 1-11; Par. [0022], lines 9-23).
22. As per claim 16, it is the machine-readable medium claim of the apparatus claim 2. Therefore, it is rejected under the same rational as claim 2.

23. As per claim 17, it is the machine-readable medium claim of the apparatus claim

3. Therefore, it is rejected under the same rational as claim 3.

24. As per claim 18, it is the machine-readable medium claim of the apparatus claim

4. Therefore, it is rejected under the same rational as claim 4.

25. As per claim 19, it is the machine-readable medium claim of the apparatus claim

5. Therefore, it is rejected under the same rational as claim 5.

26. Claims 6 -7, 13-14 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Langendorf et al. (Langendorf) (US 2003/0005207 A1), in view of Levinthal et al. (Levinthal) ("The silicon gaming Odyssey slot machine", 1997, IEEE, Pages 296-301).

27. As per claim 6, Langendorf did not specifically teach that the at least one VPCID instance is associated with a data blob. However, Levinthal teaches that the at least one VPCID instance is associated with a data blob (abs, lines 3-4; Page 300, lines 25-31).

28. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the teachings of Langendorf and Levinthal because Levinthal's teaching of associating VPCID with a data blob improving

the system by compacting the form that the data that is stored.

29. As per claim 7, Levinthal teaches the data blob stores state and data information for the at least one VPCID instance (Page 300, lines 25-31).

30. As per claim 13, it is the method claim of the apparatus claim 6. Therefore, it is rejected under the same rational as claim 6.

31. As per claim 14, it is the method claim of the apparatus claim 7. Therefore, it is rejected under the same rational as claim 7.

32. As per claim 20, it is the machine-readable medium claim of the apparatus claim 6. Therefore, it is rejected under the same rational as claim 6.

33. As per claim 21, it is the machine-readable medium claim of the apparatus claim 7. Therefore, it is rejected under the same rational as claim 7.

Conclusion

34. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

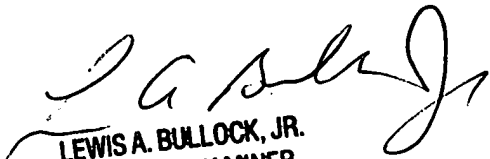
(US 2004/0199700) teaches VPCI multiple function device.

(US 2003/0023895) teaches a peripheral failover system.

(US 2005/0034125) teaches multiple virtual devices address translation.

35. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caroline Arcos whose telephone number is 571-270-3151. The examiner can normally be reached on Monday-Thursday 7:00 AM to 5:30 PM.
36. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
37. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Patent examiner
Caroline Arcos


LEWIS A. BULLOCK, JR.
PRIMARY EXAMINER